CHEM 1201 General Chemistry I Lec. 3 Lab. 0 Cr. 3

Effective Date: Spring 2009-2010

Course Description

Prerequisite: a grade of "C" or higher or enrollment in MATH 1021 or MATH 1023. Fundamentals of inorganic chemistry; modern chemical theories and principles; quantitative problem solving; energy; reactions and their applications. Students who plan to pursue curricula which require more than one year of college chemistry must take CHEM 1201 and 1202. Students cannot use both this course and CHEM 1001 to meet degree requirements.

Course Objectives

Students will:

1. Understand the fundamentals of chemistry as presented in the topical outline.
2. Develop critical thinking and problem solving skills.
3. Be able to read and use data presented in graphs and charts.

Procedures to Evaluate these Objectives

1. In-class problems after concept presentation
2. In-class exams
3. Cumulative final exam

Use of Results of Evaluation to Improve the Course

1. Student responses to in-class problems will be used to immediately help clarify any misunderstandings and to later adjust the appropriate course material.
2. All exams will be graded and examined to determine areas of teaching which could use improvement.
3. All evaluation methods will be used to determine the efficacy of the material presentation.

Detailed Topical Outline

1. The scientific method and its applications
   a. The steps of the scientific method
   b. Theories and Laws
2. The metric system and unit conversion
   a. Making and interpreting measurements
   b. Dimensional analysis
   c. Significant figures
3. States of matter
   a. Solid, liquids and gases
   b. Laws of matter
4. Compounds and molecules
   a. Elements
   b. Forming and naming compounds
5. Chemical reactions

a. The mole
b. Balancing and stoichiometry
c. Types of chemical reactions

6. Gas behavior
   a. The combined gas law
   b. The ideal gas law
7. Introduction to thermochemistry
8. Atomic structure
   a. The atom
   b. The periodic table
   c. Chemical reactivity
9. Chemical bonding
   a. Ionic bonding
   b. Covalent bonding
      1. Localized electron model
      2. Molecular orbital model